Patents fling ever widening net

PalmChip's bus (interconnect) patent towers over the SoC industry. US patent no. 6,601,126 granted to PalmChip Corp is claimed to cover those techniques used to implement on-chip CPU bus structures in nearly all modern system-on-chip (SoC) designs. CPU or system-interconnect intellectual-property vendors and most SoC design teams may infringe the new patent, PalmChip has warned.

"Our first phase is to inform the SoC industry that we have been granted this patent," said James Venable, VP of marketing, PalmChip. "We want to give companies that are creating on-chip buses an opportunity to examine their technology to see if there is a conflict and then, if there is, to contact us. We intend to be cooperative about this, not punitive. But of course we will defend our patent aggressively."

The patent makes 16 claims, addressing SoC bus structures that use point-to-point unidirectional connections in place of tristate buses; structures that are organised to use only a single buffer per line; structures that exchange data through a shared main memory rather than making direct peripheral-to-peripheral transfers, and structures in which a low-speed bus uses latches and peripherals, with clock frequencies different from that of the bus controller. With this portfolio of claims, the patent is applicable to the vast majority of SoC designs, according to chip designers.

Nanotechechnology could be moving the same route with companies covering similar wide boundaries. NanoProducts Corp for example has been granted US patent 6,602,543. The soul of abstract brevity, this patent is for *"Nano structured non-stoichiometric materials."* Novel magnetic materials and their applications are discussed. More specifically, the specifications teach the use of nanotechnology and nanostructured materials for developing novel magnetic devices and products.

The first sweep is in the materials claim: "wherein the nanomaterial comprises ferrite; has a domain size less than 500nm or less than 100nm; has a composition that comprises at least one element selected from the group consisting of: barium, calcium, strontium, iron, cobalt, nickel, rare earth, yttrium, titanium, zirconium, tungsten, tantalum, niobium, molybdenum, zinc, copper, tin, indium, silicon, antimony and aluminium, and where the device comprises a magnetic device.

Quietly from April to August, NanoProducts has acquired 6,607,779 nano-technology for photonic and optical components; 6,602,595... for inks and dopants; 6,602,543 ... for magnetic components; 6,576,355 ... for electronic and opto-electronic devices; 6,572,672 ... biomedical products; 6,569,518 ... electrochemical and energy devices; 6,569,490 ... chemical radiation & biotechnology sensors; 6,562,495 ... nanoscale catalyst compositions from complex and non-stoichiometric compositions; 6,554,609 ... electrical devices; 6,531,704 ... engineering the performance of substances.
In this extensive portfolio, one hopes inventors, Yadav *et al* will benefit too.

Can recession cycles be broken?

Advanced Forecasting predicted a recovery for underlying IC demand over 18 months ago. It now reports that during the period a slow improvement is expected to accelerate growth of ICs in Q4. Supporting its estimates are high fab capacity use and sales of ICs. currently 5% below the all time peak of 7.7bn units. At the depth of the 2001 recession, IC units declined 33% from peak and revenues dropped 46%.

But AF warns a similar catastrophe may reoccur because industrialists have not addressed the roots of the problem. "We predicted in early 1999 that the growth rate of underlying demand for ICs would slow significantly in the summer of 2000," said Rosa Luis, director of marketing. "Instead of slowing down, the momentum continued, leading to inflated targets, over bookings, overcapacity and inventories, causing the longest and deepest recession in semiconductor history."

"While Advanced Forecasting predicts continued growth for the near term, at some point underlying demand will begin to slow down," Luis said. "At that time we'll be able to determine if the industry will obey its dictates and slow with it. If not, overheating will occur and another recession will follow."

Integrated metrology doubles by 2005

The metrology and inspection market will grow 12% annually to reach revenues of nearly $4bn in 2005, according to "*Metrology, Inspection, and Process Control in VLSI Manufacturing*", by The Information Network research company.

The total worldwide market size for M&I was $2.5bn in 2002, only reaching $2.8bn in 2003.

"Expanded use of M&I tools is assured with increasing difficulties and higher production cost of semiconductor manufacturing", said Dr. Robert Castellano, Information Network president.

"Existing fabs continue to upgrade their monitoring capabilities by adding more units to leading edge fabs. New 300mm fab construction will account for about 40%. In addition to the large 11.5% M&I market growth, the entire front-end semiconductor equipment market will grow 7.3% in 2003," he added.

- The wafer defect review/inspection market is the largest sector, growing 14% in 2003 to $1.4bn. KLA-Tencor leads with a 56% share in 2002.
- Thin film metrology will grow 16% in 2003 to nearly $400m, having been down 42% in 2002 at $330m.
- The non-metal integrated thin film sector shows most growth, CAGR between 2003 and 2005 nearly 19% to reaching nearly $43m in revenues.
- Lithography will be impacted through 2006 by high mask costs and extended 193nm litho tools for three instead of two generations. Its growth is only put at 5.9% in 2003.